

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING UNRATED		PAGE OF PAGES 1 6	
2. CONTRACT (Proc. Inst. Ident.) NO. N00014-19-C-2033				3. EFFECTIVE DATE See Block 20C		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. 1300750868	
5. ISSUED BY Office of Naval Research (ONR 252) Michelle Parrott (703) 696-2044 michelle.parrott@navy.mil 875 N. Randolph Street Arlington VA 22203-1995		CODE N00014		6. ADMINISTERED BY (If other than Item 5) ONR REG. OFFICE CHICAGO CHICAGO REGIONAL OFFICE 230 South Dearborn ROOM 380 Chicago IL 60604-1595		CODE N62880	
7. NAME AND ADDRESS OF CONTRACTOR (No., street, country, State and ZIP Code) PENNSYLVANIA STATE UNIVERSITY, THE Attn: John Hanold 110 TECHNOLOGY CENTER UNIVERSITY PARK PA 168027000				8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)		SCD-C	
				9. DISCOUNT FOR PROMPT PAYMENT			
CODE 7A720		FACILITY CODE		10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN		ITEM See Sec G	
11. SHIP TO/MARK FOR Office of Naval Research Attn: Billy Short, Code: 33 703-696-0842 billy.short@navy.mil 875 North Randolph St Arlington VA 22203-1995		CODE N00014		12. PAYMENT WILL BE MADE BY DFAS COLUMB. NORTH ENTL-HQ0337 PO BOX 182266 COLUMBUS OH 43218-2266		CODE HQ0337	
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION. <input type="checkbox"/> 10 U.S.C. 2304 (c) () <input type="checkbox"/> 41 U.S.C. 3304 (a) ()				14. ACCOUNTING AND APPROPRIATION DATA See Section G			
15A. ITEM NO	15B. SUPPLIES/SERVICES			15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
Continued							
15G. TOTAL AMOUNT OF CONTRACT						\$1,159,598.00	

16. TABLE OF CONTENTS							
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17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)				18. <input type="checkbox"/> SEALED-BID AWARD (Contractor is not required to sign this document.) Your bid on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary. (Block 18 should be checked only when awarding a sealed-bid contract.)			
19A. NAME AND TITLE OF SIGNER (Type or print)				20A. NAME OF CONTRACTING OFFICER Sean M. Palmer			
19B. NAME OF CONTRACTOR			19C. DATE SIGNED	20B. UNITED STATES OF AMERICA (b)(6)		20C. DATE SIGNED 03/06/2019	
BY _____ (Signature of person authorized to sign)			BY _____ (Signature of the Contracting Officer)				

Section B - Supplies or Services/Prices

CLINs/SLINs

Item Number	Description	Quantity	Unit	Unit Price	Amount
0001	The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and Exhibit A. Award Type: Cost-plus-fixed-fee Product/Service Code: AD92 Qty: 1 Unit: LO Estimated Cost: \$1,104,379 Fixed Fee: \$55,219				1,159,598.00
000101	ACRN: AA (Qty:0 and Amt: \$175,000.00) Award Type: Cost-plus-fixed-fee		LO		

The total amount of the base and exercised options is \$1,159,598.00.

The total potential amount for this action is \$1,159,598.00.

ONR- Predetermined/Fixed Indirect Cost Rate Agreement

Predetermined/Fixed Indirect Cost Rate Agreement dated 14 MAY 2018, 12 JUL 2018, and 19 JUL 2018 between the Federal Government and Pennsylvania State University, is hereby incorporated by reference.

Section B Basic Agreement Sections

Section B of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Terms and Conditions

The Basic Agreement (BA) N00014-18-H-2001 between the Applied Research Laboratory: Pennsylvania State University and the Office of Naval Research dated 28 AUG 2018 is hereby incorporated by reference throughout this award.

Section C - Description/Specifications

ONR- Key Personnel

(a) The Contractor agrees to assign to the contract tasks those persons whose resumes were submitted with its proposal and who are necessary to fulfill the requirements of the contract as "key personnel". No substitutions may be made except in accordance with this instruction.

(b) The Contractor understands that during the first ninety (90) days of the contract performance period, no personnel substitutions will be permitted unless these substitutions are unavoidable because of the incumbent's sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information described in paragraph (c) below. After the initial ninety (90) day period the Contractor must submit to the Contracting Officer all proposed substitutions, in writing, at least 30 days in advance 45 days if security clearance must be obtained, of any proposed substitution and provide the information required by paragraph (c) below.

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(c) Any request for substitution must include a detailed explanation of the circumstances necessitating the proposed substitution, a resume for the proposed substitute, and any other information requested by the Contracting Officer. Any proposed substitute must have qualifications equal to or superior to the qualifications of the incumbent. The Contracting Officer or his/her authorized representative will evaluate such requests and promptly notify the Contractor in writing of his/her approval or disapproval thereof.

(d) In the event that any of the identified key personnel cease to perform under the contract and the substitute is disapproved, the contract may be immediately terminated in accordance with the Termination clause of the contract.

The following are identified as key personnel:

Principal Investigator: Robert L. Walter IV

Section C Basic Agreement Sections

Section C of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section D - Packaging and Marking

Section D Basic Agreement Sections

Section D of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section E - Inspection and Acceptance

Section E Basic Agreement Sections

Section E of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section F - Deliveries or Performance

ONR- Period of Performance

The effort performed under CLIN 0001 shall be conducted from date of award through 14 MAR 2021.

CLIN(s)/SLIN(s) will be delivered as follows:

Item/Sub Number	Item Description	Delivery Code	Delivery Address	Period of Performance (if applicable)	Delivery No Later Than (if applicable)
0001	The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and Exhibit A.	N00014	Office of Naval Research Attn: Billy Short, Code: 33 703-696-0842 billy.short@navy.mil 875 North Randolph Street Arlington VA 22203-1995	3/6/2019 - 3/14/2021	

1) Any request for a period of performance extension shall be submitted in writing to the Contracting Officer and Contracting Officer Representative (COR)/Program Officer no later than thirty (30) days prior to the expiration of the contract to allow the Government time to consider, and if approved, process the request. Requests submitted less than thirty (30) prior to the expiration of the contract may be rejected and not processed by the Government.

2) The request shall include (a) Contract Number, (b) Contract Line Item number (CLIN) associated with the extension, (c) current expiration date of the CLIN associated with the extension, (d) revised date for which the extension is requested, (e) the name of the COR associated with this contract and his/her Program Code, (f) the rationale as to why the extension is required, (g) status of the remaining task(s) to be completed during the extension period, (h) plan of action for completing the effort, and (i) evidence of sufficient funding under the CLIN to ensure remaining task(s) may be completed during the extension.

ONR- Place of Delivery

All deliverable items (e.g., prototypes and software stated in Section B, and reports and data listed in the DD1423) shall be F.O.B. Destination.

Section F Basic Agreement Sections

Section F of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section G - Contract Administration Data

ONR- Procuring Office Representative

In order to expedite administration of this contract, the Administrative Contracting Officer should direct inquiries to the appropriate office listed below. Please do not direct routine inquiries to the person listed in Item 20A on Standard Form 26.

Contract Negotiator -- Michelle Parrott, ONR 252, (P) 703-696-2044, Email: michelle.parrott@navy.mil

Inspection and Acceptance – Billy Short, Code 30, (P) 703-696-0842, Email: billy.short@navy.mil

Security Matters – Mrs. Torri Powell, ONR 43, (P) 703-696-8177, Email: torri.powell@navy.mil

Patent Matters – Mr. John Forrest, ONR 00CC, (P) 703-696-4000, Email: john.forrest@navy.mil

ONR- Award Distribution (JULY 2015)

In accordance with the requirements of FAR 4.201, distribution is made to the contractor, program office, administrative contracting office, payment office and audit office. See the following matrix to determine the specific distribution location, which is based upon the award form used:

Distribution:	SF 26	SF 30	SF 33	SF 1449	DD1155
Contractor	See Block 7	See Block 8	See Block 15A	See Block 17a	See Block 9
Program Office	See Block 11 or Section G	See Block 6	See Block 11 or Section G	See Block 15	See Block 14
Administrative Contracting Office	See Block 6	See Block 7	See Block 24	See Block 16	See Block 7
Payment Office	See Block 12	See Block 14	See Block 25	See Block 18a	See Block 15
Auditor	See Section G	See Section G	See Section G	See Section G	See Section

ONR- Type of Award

This is a Cost-plus-fixed-fee completion type contract.

ONR- Financial Accounting Data

ACRN	List of Item/Sub Number (LI#)	Line of Accounting (LOA)	Total Amount
AA	000101	1791319W2322550001400501202D000000A00004779479	\$175,000.00
Total Obligated Amount			\$175,000.00

ONR- Allotment of Funds

It is hereby understood and agreed that this contract will not exceed a total amount of \$1,159,598; including an estimated cost of \$1,104,379 and a fixed fee of \$55,219.

The total amount presently available for payment and allotted to CLIN 0001 of this contract is \$175,000; including an estimated cost of \$166,667 and a fixed fee of \$8,333. It is estimated that the amount allotted of \$175,000 will cover the period from date of award through 30 JUN 2019.

ONR- Refunds/Overpayments

Refunds owed to the Government in accordance with any provision (e.g. paragraph (h) of FAR 52.216-7, paragraph (d) of FAR 52.232-25) of this contract must be remitted through the Department of Treasury's website, www.pay.gov, (preferred method) or to the Administrative Office by check made payable to the US Treasury. Instructions necessary for using www.pay.gov for refunds to ONR awards can be found at <https://www.onr.navy.mil/en/work-with-us/manage-your-award/manage-contract-award>. When remitting a refund using a check, the Administrative Office should be located by reviewing the most recent modification (Block 7 of the Standard Form 30) or, when no modifications have been issued, the original award in Block 6 of the Standard Form 26

Section G Basic Agreement Sections

Section G of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section H - Special Contract Requirements**ONR- Individual Subcontracting Plan**

The Contractor's Individual Subcontracting Plan, dated 15 FEB 2019, is incorporated herein as Attachment Number 3 to the contract.

Section H Basic Agreement Sections

Section H of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section I - Contract Clauses**Clauses Included by Reference**

Clause Database	Clause Number	Clause Title

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Clauses Included by Full Text

Section I Basic Agreement Sections

Section I of the Basic Agreement (BA) N00014-18-H-2001 is hereby incorporated under this award.

Section J - List of Documents, Exhibits and Other Attachments

Number	Title	Number of Pages
Exhibit A	Contract Data Requirements List	1
Enclosure Number 1 to Exhibit A	Instructions for Distribution	2
1	Statement of Work	1
2	Contracting Officer's Representative Appointment Letter	5
3	Individual Subcontracting Plan	7

CONTRACT DATA REQUIREMENTS LIST

(2 Data Items)

Form Approved
OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0701-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to the above address. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. Listed in Block E.

A. CONTRACT LINE ITEM NO. 0001		B. EXHIBIT A	C. CATEGORY TDP _____ TM _____ OTHER <u>X</u>	
D. SYSTEM/ITEM Artificial Intelligence for Tactical Logistics		E. CONTRACT/PR NO. N00014-19-C-2033		F. CONTRACTOR Penn State University Applied Research Lab
1. DATA ITEM NO. A001	2. TITLE OF DATA ITEM Progress Reports (Technical and Financial)		3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)		5. CONTRACT REFERENCE See Section C		6. REQUIRING OFFICE See Section F
7. DD 250 REQ NO NO	9. DIST STATEMENT REQUIRED See Block 16	10. FREQUENCY MONTHLY	12. DATE OF FIRST SUBMISSION See Block 16	14. DISTRIBUTION b. COPIES Draft Final Reg Repro
8. APP CODE N/A		11. AS OF DATE See Block 16	13. DATE OF SUBSEQUENT SUBMISSION See Block 16	
16. REMARKS Nontechnical reports may be provided in contractor format. Technical reports shall be in the format described in Section D. Must include contract number, project title, total contract amount, costs incurred during the performance period, costs incurred to date, estimate to complete, schedule of deliveries or milestones, actual dates of delivery or completion of milestone, brief summary of progress and major accomplishments, explanation of any anticipated problems and actions being taken to correct problems. Block 9: Distribution Statement C. Distribution authorized to U.S. Government Agencies and their contractors. Other requests for this document shall be referred to the Program Officer listed in the contract. Block 11: Contract/delivery order award. Block 12: 35 days after contract/delivery order award Block 13: Every month.				15. TOTAL
				1. DATA ITEM NO. A002
4. AUTHORITY (Data Acquisition Document No.)		5. CONTRACT REFERENCE See Section C		6. REQUIRING OFFICE See Section F
7. DD 250 REQ XX	9. DIST STATEMENT REQUIRED See Block 16	10. FREQUENCY One time and revisions	12. DATE OF FIRST SUBMISSION 30 days prior to contract completion	14. DISTRIBUTION b. COPIES Draft Final Reg Repro
8. APP CODE N/A		11. AS OF DATE See Block 16.	13. DATE OF SUBSEQUENT SUBMISSION Upon Contract Completion	
16. REMARKS Inspection and acceptance is required by the Program Officer at destination. The receiving report in WAWF shall be used as a Material Inspection and Receiving Report in lieu of a DD Form 250. Information copies shall be sent to the appropriate parties in accordance with Enclosure Number 1. This report shall include a description of all tasks performed, accomplishments of the program, make recommendations for future technology or research, and contain a breakdown of all contract costs. Specifically, it shall also include descriptions of the tactical logistics ontology, tactical logistics planning requirements, logistics demand services, the interface design between networks, and distributed logistics ledger technologies. Final report shall be in the format described in Section D. Block 9: Distribution Statement C. Distribution authorized to U.S. Government Agencies and their contractors. Other requests for this document shall be referred to the Program Officer in the contract. Block 11: The final report shall be delivered no later than the end date specified in Section F of the Contract.				15. TOTAL
				G. PREPARED BY Michelle Parrott

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

**ENCLOSURE NUMBER 1
CONTRACT DATA REQUIREMENTS LIST
INSTRUCTIONS FOR DISTRIBUTION**

DISTRIBUTION OF PROGRESS REPORTS, which are NOT, Technical Reports

The minimum distribution for reports that are not technical reports is as follows:

ADDRESSEE	DODAAC CODE	NUMBER OF COPIES	
		UNCLASSIFIED / UNLIMITED	UNCLASSIFIED/ LIMITED AND CLASSIFIED
Program Officer: Billy Short ONR Code 33 E-Mail: billy.short@navy.mil Office of Naval Research 875 North Randolph St. Arlington, VA 22203-1995	N00014	1	1
Administrative Contracting Officer* (https://pubapp.dcm.mil/CASD/CasdSearch.do)	N62880	1	1

*Send only a copy of the transmittal letter to the Administrative Contracting Officer; do not send actual reports to the Administrative Contracting Officer.

DISTRIBUTION OF TECHNICAL REPORTS AND FINAL REPORT
(A SF 298 must accompany the final report)

ADDRESSEE	DODAAC CODE	NUMBER OF COPIES	
		UNCLASSIFIED / UNLIMITED	UNCLASSIFIED/ LIMITED AND CLASSIFIED
Program Officer: Billy Short ONR Code 33 E-Mail: billy.short@navy.mil	N00014	1	1
Administrative Contracting Officer* (https://pubapp.dcm.mil/CASD/CasdSearch.do)	N62880	1	1
Director, Naval Research Lab Attn: Code 5596 4555 Overlook Avenue, SW Washington, D.C. 20375-5320 E-mail: reports@library.nrl.navy.mil	N00173	1	1
Defense Technical Information Center 8725 John J. Kingman Road ATTN: DTIC-C Ft. Belvoir, VA 22060-6218	HJ4701	1	1

		NUMBER OF COPIES	
<p>To submit reports electronically, go to the Submit home page of the DTIC Enterprise Contract Management System (ECMS): http://www.dtic.mil/dtic/submit/submit.html</p> <p>E-mail (public release pdf documents only): dtic.belvoir.ecm.mbx.tr@mail.mil</p> <p>Classified documents should be emailed to tr@dtic.smil.mil or sent via surface mail to DTIC at the above address. Submittals must be in accordance with all classified material handling procedures.</p>			

* Send only a copy of the transmittal letter to the Administrative Contracting Officer; do not send actual reports to the Administrative Contracting Officer.

ELECTRONIC SUBMISSIONS OF TECHNICAL REPORTS TO THE ENTERPRISE CONTRACT MANAGEMENT SYSTEM (ECMS) IS PREFERRED AND ENCOURAGED. HOWEVER, PLEASE NOTE THE FOLLOWING:

- Only Unlimited/Unclassified document copies should be submitted by e-mail.
- Unclassified/Limited has restricted distribution and a classified document (whether in its entirety or partially) must be distributed in accordance with classified material handling procedures.
- Electronic submission to DIRECTOR, NAVAL RESEARCH LAB, shall be unclassified/unlimited reports and 30 pages or less. If unclassified and more than 30 pages, hardcopies of reports must be mailed.
- Electronic submission to DTIC shall be unclassified/unlimited reports. If submission is for limited documents please send them in on a disk or sign up for DTIC's web-based document submission system at <http://www.dtic.mil/dtic/submit/submit.html>. DTIC prefers PDF/A files; however, other versions of PDF files will also be accepted. **NOTE:** DTIC can no longer accept the following file types via email: password protected, zipped or compressed files, file with the extensions: *.vbs, *.cmd, *.exe, *.bat, *.com, *.mp3, *.eml and *.dll.

Note: If the Program Officer directs, the Contractor shall make additional distribution of technical reports in accordance with a supplemental distribution list provided by the Program Officer.

Statement of Work

Task 1 - Add the Logistics Domain to the Battlespace Knowledge Architecture

- Semantically enrich the logistics messages passed on the Tactical Services Oriented Architecture (TSOA) by annotating the schemas with ontological representations.
- Create logistics models in the BKA that will be reported in each of the tactical logistics reports and mapped back into the event timeline.
- Create models of query templates that the Commanders Critical Information Requirements (CCIR) and Priority Information Requirements (PIR) will leverage when creating dynamic queries.
- Create models of impact templates that relate logistics events to recommendations that mitigate operational risks and leverage operational opportunities.
- Extend user interfaces to include information.
- Provide demonstrations to and exercises with the Marine Corps Systems Command and Marine Corps Warfighting Laboratory.
- Transition semantically enriched logistics messages, models of events, models of query templates and models of impact templates to the Marine Corps Systems Command.

Task 2 - Analyze Tactical Logistics Planning Needs

- Analyze the tactical logistics planning requirements for supporting the Autonomous Aerial Resupply (AAR) initiative.
- Identify requirements which could feasibly be met by AI techniques and identify preliminary techniques.
- Identify data elements required to support AI algorithm development and operational use.
- Assess feasibility and expected impacts and select best candidates for prototype development in Task 3.

Task 3 - Develop Logistics Planning Services

- Define and develop planning services to understand tactical logistics demands, where supplies and delivery capabilities are located, and how to effectively deliver and match capabilities to prioritized tactical needs.
- Apply AI techniques identified in Task 2 to develop AI models which meet the identified planning requirements using data provided by the BKA and implement within planning services.
- Develop optimization models to execute operational, dynamic supply and demand matching and asset tasking.
- Develop an operational simulation that generates and publishes logistics status messages to the TSOA used to evaluate the operational effectiveness of dynamic logistics planning.
- Develop a user interface to integrate capabilities.

Task 4 - Develop Logistics Planning and Analytical Interface

- Define and develop a logistics planning and analytical interface between the Tactical Services Oriented Architecture (TSOA) and Agile Cloud Services (ACS) or Tactical Cloud Reference Implementation (TCRI) afloat in order to leverage a distributed planning and analytic capability.

Task 5 - Assess Distributed Logistics Ledger and Distributed Applications

Assess use cases for applying distributed logistics ledger and distributed applications (Dapps) using blockchain smart contracts that operate in a disconnected, intermittent and low bandwidth (DIL) environment and operate when disconnected from enterprise resource planning (ERP) systems. Use red-cell techniques to assess cybersecurity strengths and weaknesses

CONTRACTING OFFICER'S REPRESENTATIVE
DESIGNATION LETTER

21 February 2019

From: R. Brian Bradley, Code 252

To: Billy Short, Code 30

Subj: Designation as Contracting Officer's Representative
(COR)

Ref: (a) FAR 1.602
(b) DFARS 201.602-2
(c) DFARS PGI 201.602-2
(d) ONRINST 4205.2D

1. Pursuant to references (a) through (d), you are hereby designated as the Contracting Officer's Representative (COR) for the administration of the following contract/order:

Contract Number: N00014-19-C-2033

For: Artificial Intelligence for Tactical Logistics

Name of Contractor: The Pennsylvania State University
110 Technology Center
University Park, PA 16802

Contract Period: 24 months

2. You are authorized by this designation to take action with respect to the following:

a. Verify that the contractor performs the technical requirements of the contract in accordance with the contract terms, conditions and specifications.

b. Perform acceptance for the Government of services performed under this contract. You are the designated Government Official to receive and accept invoices for payment (only for non-Cost contracts) via iRAPT. You are advised that invoices that you are required to review and accept shall be reviewed as to completeness, accuracy and in accordance with the contract as awarded and by signing

the acceptance, you are attesting that the invoice is valid and accurate.

c. Maintain liaison and direct communications with the contractor. Written communications with the contractor and other documents pertaining to the contract shall be signed as "Contracting Officer's Representative" and a copy shall be furnished to the contracting officer.

d. Monitor the contractor's performance; notify the contractor of deficiencies observed and direct appropriate action to effect correction. Record and report to the PCO incidents of faulty or nonconforming work, delays or problems.

3. You are not empowered to award, agree to or sign any contract (including delivery orders) or contract modifications or in any way obligate the payment of money by the Government. You may not take any action which may affect contract or delivery order schedules, funds or scope. The Procuring Contracting Officer (PCO) shall make all contractual agreements, commitments or modifications that involve price, quantity, quality, delivery schedules or other terms and conditions of the contract.

4. You may be personally and financially liable for unauthorized acts.

5. You may not re-delegate, re-designate or transfer your COR authority.

6. You must meet the qualification requirements established in this instruction for the specific type of standard (A, B or C).

7. This designation as a COR shall remain in effect through the life of the contract, unless revoked sooner in writing by the PCO. If you are to be reassigned or to be separated from Government service, you shall notify the PCO sufficiently in advance of reassignment or separation to permit timely selection and designation of a successor COR. If your designation is revoked for any reason before completion of this contract, turn your records over to the successor COR or obtain disposition instructions from the PCO.

8. You are required to maintain adequate records to

sufficiently describe the performance of your duties as a COR during the life of this contract and to dispose of such records as directed by the PCO. As a minimum, the COR file must contain the following:

- a. A copy of COR File Checklist, NAVONR 4205/3
 - b. A copy of your letter of appointment from the PCO, or any amendments thereto.
 - c. A copy of the contract or the appropriate part of the contract and all contract modifications.
 - d. A copy of the applicable quality assurance surveillance plan (QASP). (Applies to Services Type contracts)
 - e. All correspondence pertaining to this contract, including Memorandums of Record for meetings, contractor discussions, etc.
 - f. The names and position titles of individuals who serve as Key Personnel on the contract. The PCO must approve all Key Personnel.
 - g. A record of inspections performed and results (as applicable).
 - h. Memoranda for record or minutes of any pre-performance conferences (as applicable).
 - i. Memoranda for record of minutes of any meetings and discussions with the contractor or others pertaining to the contract or contract performance.
 - j. Documentation pertaining to your acceptance of performance of services, including reports and other data.
9. All Government personnel engaged in contracting and related activities shall conduct business dealings with industry in a manner above reproach in every aspect and shall protect the U.S. Government's interest, as well as maintain its reputation for fair and equal dealings with all contractors. DoD 5500.7-R sets forth standards of conduct for all personnel directly and indirectly involved in contracting.

10. A COR who may have direct or indirect financial interest which would place the COR in a position where there is a conflict between the COR's private interests and public interests of the United States shall advise the supervisor and PCO of the conflict so the appropriate actions may be taken. COR's shall avoid the appearance of a conflict of interest to maintain public confidence in the U.S. Government's conduct of business with the private sector.

11. As a COR you must file an OGE Form 450 "Confidential Financial Disclosure Report". This form is used to report financial interests as well as other interests outside the Government. The purpose of this report is to assist employees in avoiding conflicts between duties and private financial interests or affiliations.

12. The letter of designation must be signed by the PCO and yourself. You and your supervisor should retain copies of the executed letter of designation. The original executed letter of designation must be retained in the PCO's contract file and your copy in the COR contract file. The executed letter of designation constitutes certification for performance of your responsibilities for the time period specified under the specific contract, task or delivery order. Your signature also serves as certification that you have read and understand the contents of DoD 5500.7-R.

13. If you have any questions regarding this nomination, please contact Michelle Parrott at (703) 696-2044, or e-mail at michelle.parrott@navy.mil.

BRADLEY.ROBERT

T.B.1230644620

Contracting Officer

Digitally signed by
BRADLEY.ROBERT.B.1230644620
DN: c=US, o=U.S. Government, ou=DoD,
ou=PKI, ou=USN,
cn=BRADLEY.ROBERT.B.1230644620
Date: 2019.02.21 13:37:25 -05'00'

COR ACKNOWLEDGEMENT:

I have read, understand and shall comply with the COR Appointment Letter and the Joint Ethics Regulation DOD 5500.7R. I have completed and provided evidence of the required training.

I understand that the above duties will be added to my performance objectives and be evaluated during my rating period. I also understand that I do not have the authority to obligate the government.

COR Name: Billy Short

Title: Program Officer

Phone: 703-696-0842

E-mail: billy.short@navy.mil

Signature: SHORT.BILLY.JO
E.JR.1043758663

Digitally signed by
SHORT.BILLY.JOE.JR.1043758663
DN: c=US, o=U.S. Government, ou=DoD,
ou=PKI, ou=USN,
cn=SHORT.BILLY.JOE.JR.1043758663
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Date: 02/21/2019

**The Pennsylvania State University
Applied Research Laboratory
Post Office Box 30
State College, PA 16804**

Reference: ARL Penn State Proposal Number 27025 to the Office of Naval Research (ONR 30) titled "Artificial Intelligence for Tactical Logistics" dated 07 September 2018.

This plan has been submitted to the Office of Naval Research, Office of Small Business for review and comment.

Introduction

This subcontracting plan is to be used by the Applied Research Laboratory (ARL Penn State) of The Pennsylvania State University in the performance of any contract awarded as a result of referenced proposal.

The Applied Research Laboratory is located on the main campus of The Pennsylvania State University. The Applied Research Laboratory has competence in exploratory and advanced research in the following areas: underwater acoustics, hydrodynamics, propulsors, guidance and control, signal processing, closed-cycle thermal powerplants, systems analysis, and materials science.

It is the policy of The Pennsylvania State University to encourage the participation of small business, veteran owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns in its programs to the maximum extent, consistent with efficient performance and compliance with applicable laws and requirements of the contractual document referenced above.

It is the intent of ARL Penn State to assist small business concerns, small business concerns owned and controlled by socially and economically disadvantaged individuals, historically black colleges and universities/minority institutions, HUBZone small business concerns, women-owned small business concerns, veteran-owned small business concerns, and service-disabled veteran-owned small business concerns, to the maximum extent practical, consistent with sound business practices and with the efficient performance of the referenced contract requirements.

It is also the intent to give such business concerns a fair and equitable opportunity to compete for business, consistent with the efficient performance of the referenced contractual obligations. ARL Penn State pledges to make a concerted effort to locate small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns to insure an equitable opportunity in competing for subcontract requirements.

Subcontracting Plan for Utilization of Small Business (SEPTEMBER 2016 Version)

Total Estimated Proposal Budget (Total):	\$	1,159,598	
Total Planned Subcontracts:	\$	79,937	
Type of Business	Goals as a Percentage of Total Planned Subcontracts	Goals as Dollar Amount of Total Planned Subcontracts	
Small Business including SDB, WOSB, HBCU/MI, HUBZone SB, VOSB and SDVOSB	23%	\$18,386	
Large Business	77%	\$61,551	
TOTAL Small and Large Business	100%	\$79,937	
Small Disadvantaged Business (SDB)	5%	\$3,997	
Women-Owned Small Business (WOSB)	5%	\$3,997	
Historically Black Colleges & Universities and Minority Institutions (HBCU/MI)	3%	\$2,398	
HUBZone Small Business	3%	\$2,398	
Veteran-Owned Small Business (VOSB)	3%	\$2,398	
Service-Disabled Veteran Owned Small Business (SDVOSB)	3%	\$2,398	

Note: The Small Business goal includes total planned subcontracted dollars to small disadvantaged businesses (SDB), to include historically black colleges and universities/minority institutions (HBCU/MI) women-owned small businesses (WOSB), HUBZone small businesses, veteran-owned small businesses (VOSB), and service-disabled veteran-owned small businesses (SDVOSB).

The principal supply and service areas to be competitively subcontracted to small businesses, veteran-owned small businesses, service-disabled veteran-owned small businesses, HUBZone small businesses, small disadvantaged businesses (including historically black colleges and universities/minority institutions), women-owned small businesses, and large businesses with examples of each area are as follows, with our estimate of the business type most likely to be used in parentheses based on past procurement experience, listed in order of likelihood:

- (1) Electronic Components (large; small): Transistors, diodes, wire, relays, connectors, potentiometers.
- (2) Services (small; women-owned small): Machining, printed circuit boards, castings, consulting, and printing.
- (3) Maintenance, Repairs and Operating Supplies (small; women-owned small; small disadvantaged): Janitorial supplies, office supplies, equipment repair, electrical and machine shop supplies.

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- (4) Equipment (large; small; small disadvantaged; women-owned small): Computers, equipment systems manufactured to ARL Penn State specifications, various items of test and laboratory equipment.
- (5) Miscellaneous Hardware (large; small; HUBZone): Various metals, fasteners, chemicals, tools.
- (6) Major Subcontracts (large; small; small disadvantaged (including historically black colleges and universities/minority institutions)): Specialized major items of equipment, labor contracts for specific services, research and development work, specialized testing facilities.

It is ARL Penn State's intention to utilize small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns as subcontractors, to the goals stated in this proposal, for items in all principal areas of procurement. Due to differences in procurement requirements, actual percentages may vary between principal areas, but the total percentage will apply to total procurement dollars. (A breakdown of procurement by principal areas, i.e. commodities, is not available and would require implementation of extensive accounting procedures).

The goals developed for utilization of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, (including historically black colleges and universities/minority institutions), and women-owned small business concerns were based on the type of items to be purchased as enumerated above, the market area for procurement of these items, and the past experience of ARL Penn State's participation in the Government's Small Business Program. Indirect costs have not been included in establishing subcontracting goals.

Administration

The Associate Director for Purchasing for the Applied Research Laboratory, Melisa Peck, is designated the Small Business Liaison Officer and will be responsible for the administration and implementation of ARL Penn State's Small Business Program. The duties and responsibilities of the designated liaison officer are:

- (1) Establishing and maintaining master source lists of potential small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, (including historically black colleges and universities/ minority institutions), and women-owned small business concerns which are capable or potentially capable of providing the goods and services required by ARL Penn State.

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- (2) Maintaining regular liaison with the representative of the Small Business Administration, other government agencies, and minority business organizations in order to obtain assistance in locating competent small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, (including historically black colleges and universities/minority institutions), and women-owned small business concerns.
- (3) Maintaining records to show ARL Penn State's performance with regard to the goals established for its submitted plans.
- (4) Developing and providing reports to appropriate University management and government agencies concerning subcontract awards made to small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns.

Description of Efforts

To assure small business concerns an opportunity to compete for ARL Penn State's purchase of materials and services, the cognizant buyer in the purchasing office will attempt to obtain the items from a small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business source by doing the following:

- (1) All purchase requests will be considered for purchase from small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns, and such concerns will be utilized when practical.
- (2) Buyers will utilize the following informational sources to locate potential small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns: Small Business Administration HUBZone and other Small and Small, Disadvantaged Vendor Search website at http://dsbs.sba.gov/dsbs/search/dsp_searchhubzone.cfm and <https://www.sba.gov>; THOMASNET.COM Supplier Discovery for Ownership/Diversity vendors at <http://www.thomasnet.com/suppliers/>; System for Award Management (SAM) Advanced Search – Entity, Socio-Economic Status search at https://www.sam.gov/portal/SAM/?navigationalstate=JBPNS_r00ABXdcACJqYXZheC5mYWNlcy5wb3J0bGV0YnJpZGdlLlNUQVRFX0lEAAAAAQApdmldzpiOWFkMzNkYS05

Subcontracting Plan for Utilization of Small Business (SEPTEMBER 2016 Version)

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- (3) ARL Penn State has been active in the Small Business Program for a number of years. All vendors utilized by ARL Penn State have been and will continue to be classified as large business, small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns. This data is utilized by buyers for potential sources which are small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.
- (4) ARL Penn State buying personnel will attend conferences, meetings, exhibits, and small business seminars to obtain the latest listings of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business concerns in an effort to locate sources.
- (5) The purchasing office will solicit information from other universities to obtain possible small business, veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business sources.
- (6) The purchasing office will counsel and discuss subcontracting opportunities with representatives of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business, and the purchasing office is prepared to answer questions and work with Small Disadvantaged Business (SDB) concerns relative to subcontracting opportunities. When appropriate, the purchasing office will refer SDB personnel to an ARL technical representative to provide assistance in describing requirements of the Laboratory, explanation of technical procedures and in some cases assist the SDB in the use of equipment.

First-Tier Subcontracts

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ARL Penn State will include the Federal Acquisition Regulation clause 52.219-8 entitled "Utilization of Small Business Concerns" in all subcontracts which offer further subcontracting opportunities in the United States, and will require all subcontractors (except small business concerns) who receive subcontracts in excess of \$700,000 or, in the case of a contract for the construction of any public facility in excess of \$1,500,000, to adopt and comply with a plan in consistent with the plan required by the Federal Acquisition Regulation clause 52.219-9 entitled "Small Business Subcontracting Plan."

Periodic Reports and Studies

ARL Penn State assures that it will submit such periodic reports to include Individual Subcontracting Report (ISR)/Subcontracting Report for Individual Contracts (SF 294) and Summary Subcontract Report (SSR) using the Electronic Subcontracting Reporting System (eSRS) when accessible, ensure that our subcontractors agree to submit Individual Subcontracting Report (ISR)/Subcontracting Report for Individual Contracts (SF 294) and Summary Subcontract Report (SSR) using the Electronic Subcontracting Reporting System (eSRS) when accessible, and cooperate in any studies or surveys as may be required by the Contracting Agency or the Small Business Administration, in order to determine the extent of compliance with the contracting plan by the offeror. ARL Penn State shall provide its prime contract number, its DUNS number, and the e-mail address of offeror's official responsible for acknowledging receipt of or rejecting the Individual Subcontracting Reports (ISR) to all first-tier subcontractors with subcontracting plans so they can enter this information into the Electronic Subcontracting Reporting System (eSRS) when submitting their Individual Subcontracting Reports (ISR). ARL Penn State shall require that each subcontractor with a subcontracting plan provide the prime contract number, its own DUNS number, and the email address of the subcontractor's official responsible for acknowledging receipt of or rejecting the Individual Subcontracting Reports (ISR), to its subcontractors with subcontracting plans.

Records to be Maintained

The purchasing office will maintain a record of each request for goods and services along with requests for quotation, receiving reports, and all correspondence or notations which will show the extent to which efforts have been made, and to demonstrate procedures which have been placed in operation, to comply with the requirements and goals.

The purchasing office will maintain a record on each subcontract solicitation resulting in an award of more than \$150,000, indicating: whether small business concerns were solicited and if not, why not; whether veteran-owned small business concerns were solicited and if not, why not; whether service-disabled veteran-owned small business concerns were solicited and if not, why not; whether HUBZone small business concerns were solicited and, if not, why not; whether small disadvantaged business concerns (including historically black colleges and universities/minority institutions) were solicited and if not, why not; whether women-owned

Subcontracting Plan for Utilization of Small Business (SEPTEMBER 2016 Version)

small business concerns were solicited and if not, why not; and if applicable, the reason award was not made to a small business concern.

Records will be maintained, on a contract-by-contract basis, to support award data submitted to the Government including the name, address, and size status of subcontractors.

The purchasing office will maintain records of any outreach efforts to contact trade associations, business development organizations, and conferences and trade fairs to locate small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business (including historically black colleges and universities/minority institutions), and women-owned small business sources.

Submitted on behalf of The Pennsylvania State University by:

Signature: Kimberly H. Knudson
Digitally signed by Kimberly H. Knudson
Date: 2019.02.15 15:24:36
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Date: 15 February 2019

Name: Kimberly Knudson

Title: Interim Associate Director of OSP, Applied Research Laboratory

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING UNRATED	PAGE OF PAGES 1 6
2. CONTRACT (Proc. Inst. Ident.) NO. N00014-19-C-2033		3. EFFECTIVE DATE See Block 20C		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. 1300750868	
6. ISSUED BY CODE N00014 Office of Naval Research (ONR 252) Michelle Parrott (703) 696-2044 michelle.parrott@navy.mil 875 N. Randolph Street Arlington VA 22203-1995		8. ADMINISTERED BY (If other than Item 5) CODE N62880 ONR REG. OFFICE CHICAGO CHICAGO REGIONAL OFFICE 230 South Dearborn ROOM 380 Chicago IL 60604-1595			
7. NAME AND ADDRESS OF CONTRACTOR (No., street, country, State and ZIP Code) PENNSYLVANIA STATE UNIVERSITY, THE Attn: John Hanold 110 TECHNOLOGY CENTER UNIVERSITY PARK PA 168027000		8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below) 9. DISCOUNT FOR PROMPT PAYMENT 10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN ITEM See Sec G			
CODE 7A720 FACILITY CODE		11. SHIP TO/MARK FOR CODE N00014 Office of Naval Research Attn: Billy Short, Code: 33 703-696-0842 billy.short@navy.mil 875 North Randolph St Arlington VA 22203-1995			
12. PAYMENT WILL BE MADE BY CODE HQ0337 DFAS COLUMB. NORTH ENTL-HQ0337 PO BOX 182266 COLUMBUS OH 43218-2266		13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304 (c) () <input type="checkbox"/> 41 U.S.C. 3304 (a) ()			
14. ACCOUNTING AND APPROPRIATION DATA See Section G		15A. ITEM NO 15B. SUPPLIES/SERVICES 15C. QUANTITY 15D. UNIT 15E. UNIT PRICE 15F. AMOUNT			
Continued					
15G. TOTAL AMOUNT OF CONTRACT					\$1,159,598.00
16. TABLE OF CONTENTS					
(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC. DESCRIPTION PAGE(S)
PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES	
	A	SOLICITATION/CONTRACT FORM		X	I CONTRACT CLAUSES 5
X	B	SUPPLIES OR SERVICES AND PRICES/COSTS	2	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.	
X	C	DESCRIPTION/SPECS./WORK STATEMENT	2	X	J LIST OF ATTACHMENTS 6
X	D	PACKAGING AND MARKING	3	PART IV - REPRESENTATIONS AND INSTRUCTIONS	
X	E	INSPECTION AND ACCEPTANCE	3	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS
X	F	DELIVERIES OR PERFORMANCE	3	L	INSTRS., CONDS., AND NOTICES TO OFFERORS
X	G	CONTRACT ADMINISTRATION DATA	4	M	EVALUATION FACTORS FOR AWARD
X	H	SPECIAL CONTRACT REQUIREMENTS	5		
CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR 18 (SEALED-BID PROCUREMENT) AS APPLICABLE					
17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 1 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)			18. <input type="checkbox"/> SEALED-BID AWARD (Contractor is not required to sign this document.) Your bid on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary (Block 18 should be checked only when awarding a sealed-bid contract.)		
19A. NAME AND TITLE OF SIGNER (Type or print): Robert L. Baker, Interim Director Office of Sponsored Programs			20A. NAME OF CONTRACTING OFFICER Sean M. Palmer		
19B. NAME OF CONTRACTOR: The Pennsylvania State University (b)(6)		19C. DATE SIGNED 05 MAR 2019	20B. UNITED STATES OF AMERICA (b)(6)		20C. DATE SIGNED 6 MAR 2019
BY _____ (Signature of person authorized to sign)		BY _____ (Signature of the Contracting Officer)			